they run off, their upper fibres are continuous up the trachea itself in front of and in contact with the intrinsic muscles. These latter, one on each side as usual, meet in the posterior middle line of the trachea, but are not unusually near in front; they are of considerable size throughout. Near their lower ends they increase immensely in bulk to form, combined posteriorly, a large subglobose mass which is situated opposite the twenty-four lowermost rings of the trachea, which are considerably shallower than those above them and consequently occupy a much less space than if they were of the same depth, as is the case in *Tantalus loculator.* There is a consolidation of the last few rings in adult birds, with which the first two bronchial semirings fuse to form a compound three-way piece, and it is to the lower elements of this that the powerful lateral muscles are attached (as well as to the third and fourth bronchial semirings slightly) by a broad fibro-tendinous continuation of their muscular substance, which fixes itself on each side along nearly the whole length of the semirings, especially the second, of which the extremities are alone free.

So far as I can find out by watching the living birds, there is nothing peculiar in their note to lead one to surmise so large a muscular supply for their lower larynx. They make a powerful screech, with no modulation in it; and it can hardly be possible that the extra muscular development has not some other function to perform. What that may be it is not easy to surmise.

8. On the Anatomy of the Maleo (*Megacephalon maleo*).

By A. H. Garrod, M.A., F.R.S.

[Received May 21, 1878.]

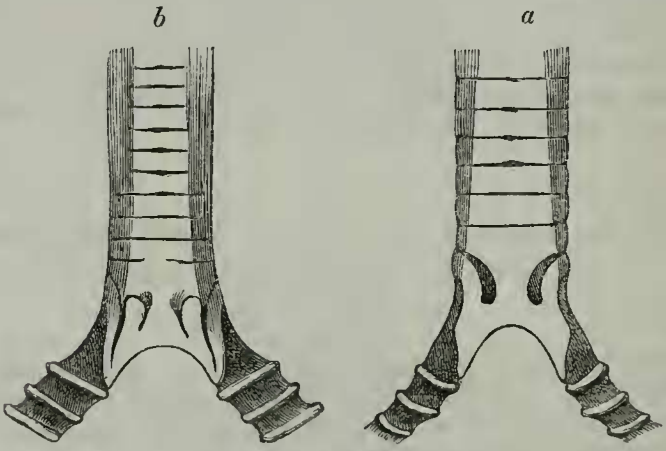
Besides being a Megapode, *Megacephalon maleo* is interesting as a peculiar form; I therefore take the opportunity of bringing before the Society the results of my dissection of three specimens of this bird which have died in the Gardens.

Pterylosis.—In the distribution of its feather-tracts the Maleo is somewhat different from the typical Gallinæ. Nitzsch briefly records what he found in a bad specimen of *Megapodius rubripes*, mentioning that the tracts were not different from those in allied birds, and that the oil-gland was tufted. This is all we know of the pterylosis of the group.

In *Megacephalon maleo* the anterior surface of the neck is covered, not thickly, with feathers, which only tend to divide opposite the furcula into the two pectoral tracts, each of which descends, strong and uniform in breadth, to opposite the middle of the carina sterni, where it ceases obtusely. The ventral tract does not exist over the anterior or upper part of the pectoral region, but commences narrow close to and opposite the middle of the carina sterni, dilating opposite the abdomen, near the middle line of which it descends parallel to its fellow, to just above the anus, where the two meet. The skin over the carina and in the middle line of the abdomen is hard and scaly. The hypopteral tract is but feebly represented, and the termination of the pectoral tract is some distance from the commencement of the abdominal tract, the angle between the direction of the one and the other being about 25°.

A strong tract traverses the middle dorsal line of the neck, with a space on each side of it. This does not bifurcate in the scapular region, but ceases abruptly a little below the level of the shoulder-joints, undilated. Over the rump and the inferior scapular region the dorsal tract is diffused and indefinite, ceasing before the *nude* oil-gland is reached. There is no ephippial space. There are sixteen rectrices. The lumbar tract is only well developed over the tibia-head and for a little way behind it. The humeral tract is not in any way peculiar. I counted nine primary and sixteen secondary remiges, the first and second secondary feathers being considerably shorter than those which follow.

Down-feathers are generally distributed. The after-shaft is weak, and the rhachis of each feather is not swollen, except in some of the smallest size.



Lower larynx of *Megaloeephalon maleo.*
a. From the front; *b.* From behind.

Visceral Anatomy.—The tongue is simple and fleshy; a well-developed crop is present, situated between the limbs of the very open furcula; the proventriculus is zonary, the gizzard powerful; the small intestine is four and a half feet long, the simple cæca five and a half inches, and the large intestine five inches in length.

There is only one carotid artery, the left, as in all the Megapodiidæ.

In its *myology* the bird is perfectly gallinaceous, the third pectoral muscle being found beneath the much larger second of the same name, the femoro-caudal and semitendinosus with their accessories, the ambiens, gluteus maximus, being all present. The obturator internus is triangular; a vinculum joins the two deep flexors of the foot, and the biceps of the arm sends a fasciculus to the patagium. The expansor secundariorum muscle ends by running to the scapula at the same time that it sends a slip of tendon to the first rib.

The lower end of the trachea is represented in the accompanying figures (p. 630), from the front and from behind. It differs in arrangement from all other of the Gallinæ with which I am acquainted. To the terminal tracheal three-way ring is fused the first bronchial semiring by its extremities, its bowed free portion being upturned with its limbs almost perpendicular. In the middle line posteriorly the penultimate tracheal ring fuses with the what may be compound three-way piece, in the posterior aspect of which a small upward-directed tongue of cartilage develops from its upper border. The sterno-tracheal muscles are minute and the intrinsic tracheal muscles form thin broad sheets which almost cover the tube and end on the outer surface of the first bronchial semiring and in the semicartilaginous large membrane between it and the unmodified following semiring.

June 4, 1878.

Prof. Flower, F.R.S., V.P., in the Chair.

The Secretary read the following report on the additions to the Society's Menagerie during the month of May 1878:—

The total number of registered additions to the Society's Menagerie during the month of May 1878 was 104, of which 43 were by birth, 39 by presentation, 8 by purchase, 7 by exchange, and 7 were received on deposit. The total number of departures during the same period by death and removals was 120.

The most noticeable additions during the month of May were as follows:—

1. Two male Lesser Birds of Paradise (*Paradisea minor*), purchased of Mr. Leon Laglaize, May 2. On his return from the Eastern Archipelago in October last, Mr. Laglaize brought with him four living specimens of this Paradise-bird. All of these passed the winter safely in the Jardin des Plantes at Paris; and two of them in full plumage have now been acquired by the Society.

The only other examples of Paradise-bird previously living in the Society's Gardens were the two individuals of the same species brought by Mr. Wallace from Singapore in April 1862[1]. One of these lived until 25th December, 1863, the other until the 28th March, 1864, in the Society's Gardens.

2. A Copper-head Snake (*Cenchris contortrix*) presented by Dr. Frederick Painter, F.Z.S., of South Pittsburg, Tennessee, U. S. A. This is a well-known venomous snake in the United States; but we have not previously received living examples of it.

3. A Hairy or Andean Tapir (*Tapirus roulini*[2]), obtained in exchange from Mr. C. Rice, May 25.

Although we have had in our Gardens examples of all the other three known species of Tapirs, this is, I believe, the first example of this rare and little-known animal that has been seen alive in Europe[1].

---

[1] See P. Z. S. 1862, p. 123.

[2] See, for the reasons for adopting this name, footnote, P. Z. S. 1870, p. 51.

Mr. Wolf's sketch (Plate XXXIX.) will give a good idea of the external appearance of the present specimen, which is a young male, probably not full-grown, and with the teeth small and imperfectly developed. The hairs over the whole body are nearly uniformly thick, but short; they are barely an inch in length, and of nearly uniform black colour throughout, with just a shade of brown tinge. The hairs on the nape of the neck and sides of the body are rather longer; those on the sides of the face are brown, and there is a slight white spot at the corner of the mouth, and some white hairs at the extremity of the muzzle. There is a slight white external edging to both ears. There are no white rings round the feet; but the upper margins of the naked nails have a whitish appearance. The irides are of a light bluish hazel, quite different from those of the ordinary *Tapirus terrestris*, in which they are brown.

The height of the animal at the shoulders is about 26 inches; the length from the end of the extended snout to the base of the tail about 54 inches.

There can be no question, to my mind, that Dr. Gray's *Tapirus leucogenys* (P. Z. S. 1872, p. 483) is merely an individual variety of the present species. The figure given (*l. c.* pl. xxi.) is altogether of too brown a tinge; and in Dr. Gray's specimen itself, which is now in the British Museum, the general colour is darker and more of a greyish black, and, except as regards the white sides of the jaws and grey face, does not materially differ from that of our specimen. As regards the white cheeks, upon which Dr. Gray lays so much stress, it may be remarked that M. Roulin's "*Tapir pinchaque*" had traces of the same colour[2], and there are likewise traces of it in our living specimen.

The Secretary exhibited a young specimen of Temminck's Manis (*Manis temmincki*), which had been brought from Zanzibar by Mr. Frederick Holmwood, Assistant Political Agent at Zanzibar, and read the subjoined extract from a letter of Mr. Holmwood referring to it:—

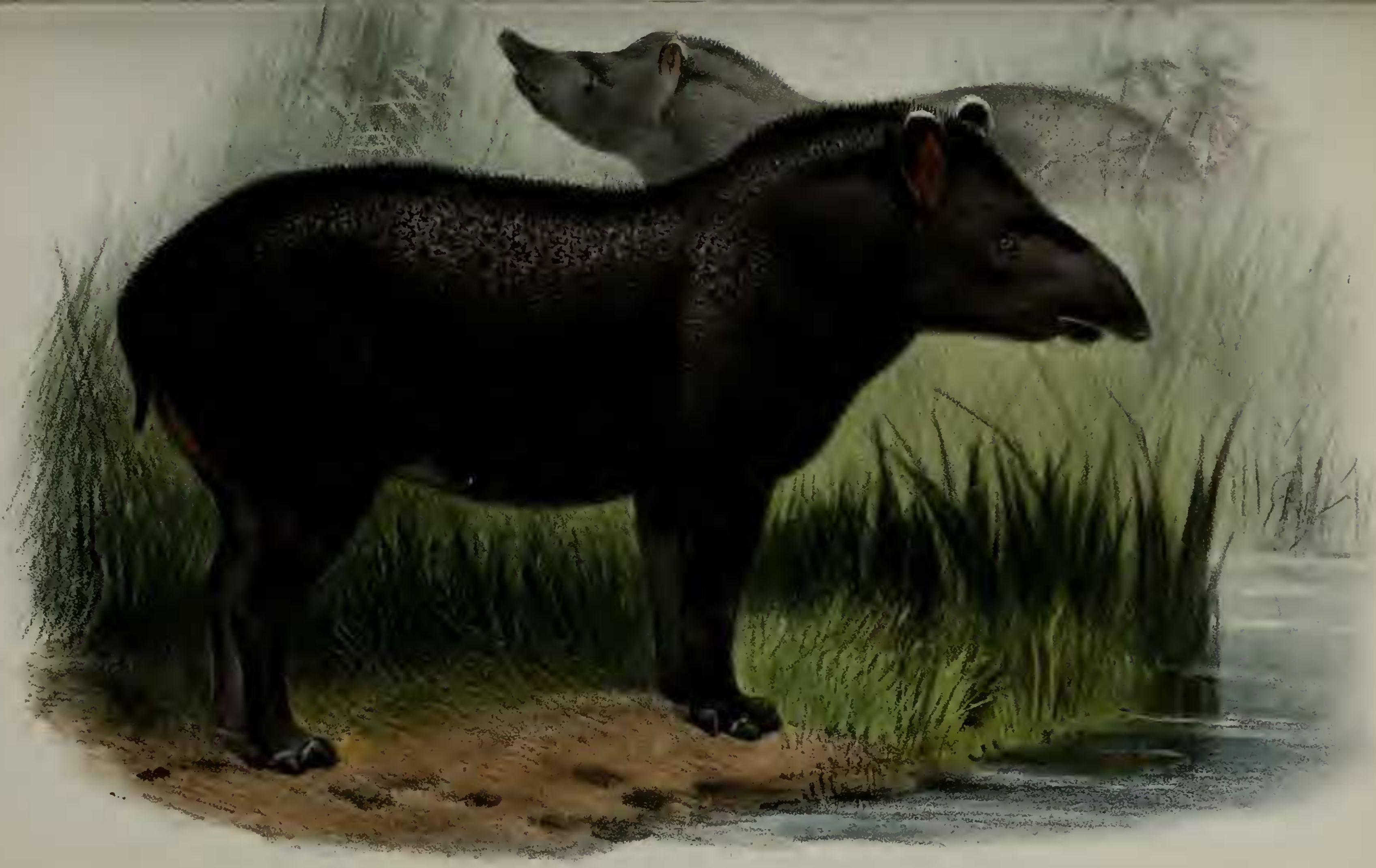
"The mother of this little Pangolin came from the coast opposite Zanzibar, lat. 6° S.; but I have seen what I took to be the same animal, both in Somali-land under the equator and as far south as the Makna country opposite Mozambique. They always appeared to burrow in hard or stony ground; and I saw them always in the daytime.

"The mother of the specimen I send you lived three months in Zanzibar. She only fed at night, and remained coiled up in a ball all day. She regularly retired to the dark corner of my harness-room at daylight, and left for the garden at sunset. There were very few ants; but she seemed to get plenty of insects. She bur-

---

[1] Unless it be true, as stated in Mr. Jamrach's letter to 'The Times' of May 31st, that an example of the same animal has lately been acquired by the Zoological Gardens of Antwerp.

[2] *Vide* Ann. des Sci. Nat. xvii. p. 109.



J. Wolf del. J. Smit lith.

Hanhart imp.

TAPIRUS ROULINI

BRITISH MUSEUM
Z D
NATURAL HISTORY